

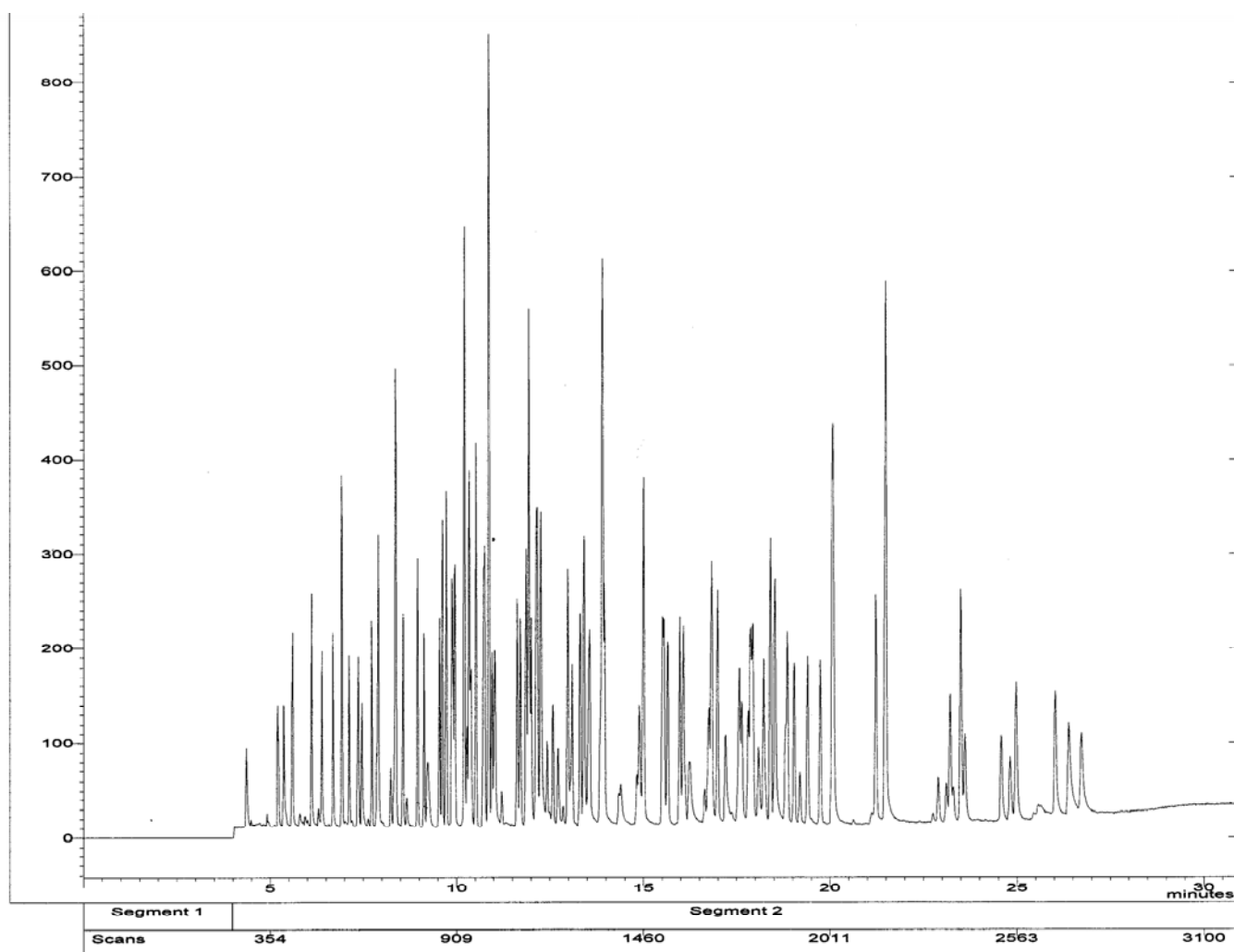


Determination of Trace of 151 Pesticides GC/MS in Foods and Vegetables

Andre de Kok & Marijke Kroon
Dutch Food Authority, Amsterdam, The Netherlands

Technique : GC/MS
Column : Fused Silica 30 m x 0.25 mm FactorFour™ VF-5 Pesticides*, df = 0.25 µm
Part no. : #CP9074
GC : Varian CP-3800
Injector : Type 1079
Temperature : 80 °C, 1 min -> 180°C, 25 °C/min, -> 300°C, 5 °C/min, -> 300°C
Carrier gas : Helium, 1.3 mL/min, constant flow
Injector : Splitless, 2.0 µL; Temperature : 250 °C
Detector : MS, Saturn 2000
Ionization : EI
Sample : 1.0 µg/mL; Wash solvent: iso-octane: acetone (9:1)
Sample prep. : Liquid-Liquid extraction

* selectivity of VF-5 Pesticides is identical to VF-5ms



Peaks:	RT						
151	(min)	Peak Name	Conc. (µg/mL)	Quan Ions	Area	S/N Ratio	Fit
1	4.487	Methamidophos	1.0	94	0	None	831
2	4.357	Dichlorvos	1.0	109	77249	647	1000
3	5.198	Biphenyl	1.0	154	104535	1896	999
4	5.363	Mevinphos	1.0	127	100520	321	994
5	5.544	Acephate	1.0	136	0	None	900
6	5.58	Etridiazole	1.0	211	26856	790	998
7	5.6	Propham	1.0	179	35628	890	993
8	5.8	Phthalimide* (degr. Folpet)		147	8830	63	999
9	5.941	Tetrahydrophthalimide* (degr. Captan)		79	7735	41	979
10	6.109	Phenylphenol-2	1.0	169	90253	1178	999
11	6.389	Heptenophos	1.0	215	14228	442	999
12	6.674	Omethoate	1.0	156	2394	20	970
13	6.689	Propoxur	1.0	110	173682	2284	992
14	6.928	Diphenylamine	1.0	169	97359	1921	971
15	6.92	Ethoprophos	1.0	158	46000	1474	978
16	7.123	Chlorpropham	1.0	213	29669	751	997
17	7.208	DMSA* (degr. Dichlofluanid)		200	1324	21	936
18	7.343	Monocrotophos	1.0	192	1084	15	994
19	7.367	Cadusafos	1.0	159	73039	1096	998
20	7.463	Pencycuron	1.0	180	50531	372	998
21	7.729	Hexachlorobenzene	1.0	284	53457	1280	997
22	7.859	Dimethoate	1.0	87	36499	422	971
23	7.9	Carbofuran	1.0	164	112148	2402	998
24	7.917	Fenpyroximate	1.0	231	9376	99	945
25	7.919	Dichloran	0.2	176	6652	97	973
26	7.917	Phosmet-Oxon * (degr. Phosmet)		160	3545	35	639
27	8.241	DMST (degr. Tolyfluanid)	1.0	106	29346	368	986
28	8.324	Lindane	0.2	183	12686	148	998
29	8.361	Diazinon	1.0	179	71353	1248	994
30	8.381	Propyzamide	1.0	173	84204	578	998
31	8.567	Pyrimethanil	1.0	198	213081	1791	994
32	8.672	Chlorothalonil	0.2	266	11154	289	997
33	8.954	Pirimicarb	1.0	166	164063	2462	993
34	9.128	Furmecyclox	1.0	123	249225	602	991
35	9.226	Pirimicarb-Desmethyl	1.0	152	111428	227	997
36	9.54	Chlorpyrifos-Methyl	1.0	286	98603	2193	999
37	9.616	Spiroxamine I	1.0	100	81480	995	963
38	9.62	Vinchlozolin	1.0	212	39959	614	996
39	9.713	Parathion-Methyl	1.0	263	41747	1378	991
40	9.727	Tolclofos-Methyl	1.0	265	152224	2246	997
41	9.872	Metalaxyl	1.0	206	53329	543	995
42	9.902	Carbaryl	1.0	144	112990	560	979
43	9.952	Prometryn	1.0	184	85833	1370	982
44	10.199	Fenpropidin	1.0	98	244642	2490	990
45	10.203	Pirimiphos-Methyl	1.0	290	95092	51309	996
46	10.277	Spiroxamine II	1.0	100	113614	1269	998
47	10.331	Fenitrothion	2.0	260	98174	806	995
48	10.385	Methiocarb	1.0	168	115510	180	995
49	10.512	Malathion	1.0	127	52386	611	997
50	10.523	Dichlofluanid	1.0	123	78042	651	997
51	10.719	Chlorpyrifos-Ethyl	1.0	314	31612	16788	997
52	10.75	Diethofencarb	1.0	267	64126	561	986
53	10.857	Fenpropimorph	1.0	128	317884	1125	952
54	10.861	Fenthion	1.0	278	144302	636	990
55	10.871	Aldrin	0.2	66	8815	24	916

Peaks:	RT						
151	(min)	Peak Name	Conc. (µg/mL)	Quan Ions	Area	S/N Ratio	Fit
56	10.868	Chlorthal-dimethyl	1.0	301	115316	57699	872
57	10.951	Parathion-Ethyl	1.0	291	34162	806	996
58	10.998	Tetraconazole	1.0	336	97492	26	997
59	11.028	Triadimefon	1.0	208	44708	150	998
60	11.215	Dichlorobenzofenon 4,4-* (dgr.Dico)		139	19232	112	999
61	11.623	Chlorfenvinphos Alpha	1.0	323	49571	876	978
62	11.713	Cyprodinil	1.0	224	187913	669	998
63	11.858	Penconazole	1.0	248	94061	868	989
64	11.866	Chlozolinate	1.0	188	37612	354	967
65	11.931	Tolyfluanid	1.0	137	100769	615	996
66	11.934	Chlorfenvinphos Beta	1.0	323	52156	354	996
67	11.948	Pyrifenox I	1.0	262	29478	98	955
68	12	Mecarbam	1.0	131	39813	146	999
69	12.141	Quinalphos	1.0	146	88340	178	997
70	12.114	Mephosfolan	1.0	140	23938	19	997
71	12.168	Furalaxyl	1.0	95	110641	457	996
72	12.281	Triflumizole	1.0	278	15150	213	985
73	12.45	Triadimenol I + II	1.0	168+112	64423	0	990
74	12.258	Captan	1.0	79	25664	62	953
75	12.252	Procymidone	1.0	283	47292	337	997
76	12.432	Folpet	1.0	260	21806	234	994
77	12.584	Methidathion	1.0	145	100438	712	999
78	12.708	Pyrifenox II	1.0	262	30193	159	999
79	12.98	Picoxystrobin	1.0	145	97536	682	998
80	13.044	Endosulfan Alpha	0.2	241	3061	55	998
81	13.095	Mepanipyrim	1.0	222	181113	1082	997
82	13.307	Flutolanil	1.0	173	242133	1338	994
83	13.413	Prothiofos	1.0	309	55975	377	998
84	13.405	Hexaconazole	1.0	214	32827	38	987
85	13.525	Fludioxonil	1.0	248	105828	234	998
86	13.558	Profenofos	1.0	339	36930	14526	997
87	13.839	Myclobutanil	1.0	179	57637	299	998
88	13.89	Flusilazole	1.0	233	86911	799	844
89	13.897	Bupirimate	1.0	273	94267	1223	993
90	13.902	Buprofenzin	1.0	175	37719	238	998
91	13.955	Kresoxim-Methyl	1.0	116	97072	1215	997
92	14.38	Cyproconazole	1.0	222	71533	74	999
93	14.821	Fenthion-Sulfoxide	1.0	278 + 279	45174	198	996
94	14.886	Endosulfan Beta	0.2	195	3067	45	750
95	14.879	Diniconazole	1.0	268	75950	326	994
96	15.096	Iprodione-degr* (degr Iprodione)		244	0	None	706
97	14.996	Ethion	1.0	231	140069	738	991
98	14.994	Oxadixyl	1.0	163	47194	190	992
99	14.498	Mepronil	1.0	119	233142	1367	929
100	15.544	Triazophos	1.0	257	35216	473	984
101	15.645	Ofurace	1.0	232	43155	341	997
102	15.972	Trifloxystrobin	1.0	116	70613	789	994
103	16.061	Quinoxifen	1.0	272	67413	454	996
104	16.118	Endosulfan-Sulfate	0.2	387	3902	1461	995
105	16.169	Propiconazole I +II	1.0	259	51377	0	996
106	16.258	Fenhexamid	1.0	97	38427	44	962
107	16.644	Dicofol-degr. * (degr. Dicofol)		251	20525	347	999
108	16.717	Tebuconazole	1.0	250	29100	73	992
109	16.765	Propargite I +II	1.0	135	55404	134	962
110	16.833	Diflufenican	1.0	266	207157	991	997

Peaks:	RT						
151	(min)	Peak Name	Conc. (µg/mL)	Quan Ions	Area	S/N Ratio	Fit
111	16.988	Piperonyl Butoxide	1.0	176	244608	508	996
112	17.183	Epoxiconazole	1.0	192	60198	16	998
113	17.53	Fenpiclonil	1.0	236	41865	235	985
114	17.571	Pyridaphenthion	1.0	340	75762	627	996
115	17.641	Iprodione	1.0	314	71217	493	998
116	17.808	Phosmet	1.0	160	160598	344	993
117	17.868	Bifenthrin	1.0	181	227234	1368	997
118	17.905	EPN	1.0	157	62219	75	997
119	17.939	Bromopropylate	1.0	341	130843	393	999
120	18.078	Fenoxycarb	1.0	116	71191	92	998
121	18.221	Fenpropathrin	1.0	265	32544	272	998
122	18.273	Dicofol	1.0	251	12164	56	972
123	18.402	Tebufenpyrad	1.0	318	96541	496	988
124	18.529	Bromuconazole	1.0	295	39848	208	998
125	18.519	Fenazaquin	1.0	145	271153	165	997
126	18.854	Tetradifon	1.0	159	45936	220	998
127	19.033	Phosalone	1.0	182	100236	458	998
128	19.192	Azinphos-Methyl	1.0	132	34521	157	999
129	19.397	Cyhalothrin-Labda I	1.0	181	8743	41	868
130	19.396	Pyriproxyfen	1.0	136	184865	452	998
131	19.733	Cyhalothrin-Labda II	1.0	181	75883	482	998
132	20.054	Pyrazophos	1.0	221	136154	1615	992
133	20.083	Acrinathrin	1.0	181	81602	309	998
134	20.05	Fenarimol	1.0	139	50803	311	965
135	21.115	Bitertanol	1.0	170	26784	162	994
136	21.225	Permethrin-Cis	1.0	183	186497	976	999
137	21.48	Permethrin-Trans	1.0	183	149907	299	922
138	21.483	Pyridaben	1.0	147	217326	1035	990
139	21.463	Fluquinconazole	1.0	340	193125	582	980
140	22.898	Cypermethrin I	1.0	163	17143	91	998
141	23.21	Flucythrinate I	1.0	199	62916	671	998
142	23.224	Cypermethrin II+III+IV	1.0	163	44788	2	999
143	23.491	Etofenprox	1.0	163	396229	161	999
144	23.604	Flucythrinate II	1.0	199	56896	126	996
145	24.571	Fenvalerate I	1.0	225	48731	290	998
146	25.019	Fluvalinate I+II	1.0	250	203233	17	991
147	24.979	Fenvalerate II	1.0	225	42019	86	993
148	25.675	Difenoconazole I+II	1.0	323	39210	1	997
149	26.017	Deltamethrin	1.0	253	49773	216	999
150	26.368	Azoxystrobin	1.0	344	96666	366	998
151	26.711	Famoxadone	1.0	330	78735	118	998

* degradation products, not put in standard solution

These data represent typical results.
For further information, contact your local Varian Sales Office.

Varian, Inc.
www.varianinc.com
North America: 800.926.3000 – 925.939.2400
Europe The Netherlands: 31.118.67.1000
Asia Pacific Australia: 613.9560.7133
Latin America Brazil: 55.11.3845.0444



VARIAN